

A SILICON GERMANIUM SURFACE LAYER FOR HIGH-K DIELECTRIC
INTEGRATION

ABSTRACT OF THE DISCLOSURE

A method for using a silicon germanium (SiGe) surface layer to integrate a high-k dielectric layer into a semiconductor device. The method forms a SiGe surface layer on a substrate and deposits a high-k dielectric layer on the SiGe surface layer. An oxide layer, located between the high-k dielectric layer and an unreacted portion of the SiGe surface layer, is formed during one or both of deposition of the high-k dielectric layer and an annealing process after deposition of the high-k dielectric layer. The method further includes forming an electrode layer on the high-k dielectric layer.